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(71) Applicant: CANON INC

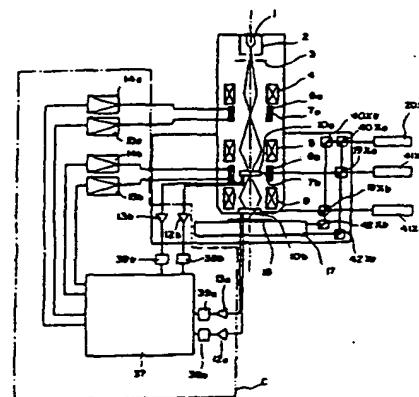
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KARIYA TAKUO**(54) MINUTE-SIZE MEASURING APPARATUS****(57) Abstract:**

PURPOSE: To obtain a measuring apparatus wherein the measuring errors of minute sizes due to temperature change in an environment and mechanical vibration by detecting the position of an electron beam in a plane perpendicular to an optical axis, and moving the electron beam from said position to a specified position.

CONSTITUTION: An electron beam mirror tube has a reference point and has electron-beam position detectors 10a and 10b which detect the position of the electron beam and electron-beam-position correcting deflection coils 6a, 7a, 6b and 7b. A length measuring device having beam splitters 19Xa and 19Xb is optically connected to the reference points of the electron-beam-position detectors 10a and 10b and the reference point of a specimen stage 17. The relative positions of the electron-beam position detectors 10a and 10b and the specimen stage 17 are determined. A central processing unit 37 is connected to the electron-beam position detectors 10a and 10b and the electron-beam-position correcting deflection coils 6a, 7a, 6b and 7b. The amount of deviation required for moving the electron beam to a specified position in a plane that is perpendicular to the optical axis of the electron beam is determined based on the detected

signals of the electron-beam position detectors 10a and 10b. Deflecting signals for moving the electron beam to the specified position are imparted to the electron-beam position correcting deflection coils 6a, 7a, 6b and 7b.

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